

The Official Newsletter of the Gwinnett Amateur Radio Society
February 2021 <http://www.gars.org/> Volume 30, Issue 2



The

GARzette



February 2021 GARS Meeting: The 4-Year Radio Upgrade to ISS by John Kludt K7SYS
New Officer Elections!



The Georgia QSO Party



Online GARS meeting Tuesday, February 9, 2021 at 7:00 pm

President's Message

From the President...

As I sit down to write this, I have completed my setup and ready to start making contacts for Winter Field Day 2021. It is a little different this year as we are not huddled together at the EAA Hangar or Fire Station 31 as in past years. Yes, it is different, but I am ready to get started. I am looking forward to operating both SSB and PSK31 and I see about 13 stations reporting in on the online GARS page reporting frequencies on 40, 20, and 15m bands. During our February meeting, we can share our stories of Winter Field Day 2021.

I'm getting optimistic as more and more are reporting getting vaccinated for COVID. Maybe there is an advantage for having an older average club membership age in that many of us are already getting at least the first dose of the vaccine. I hope that means that much of the population will have received the vaccine by the time Summer rolls around and time for ARRL Field Day in June. GARS has already reserved the Pavilion at Harbins Park for Field Day weekend so keep your fingers crossed that we can get together again for our biggest annual operating (and eating) event.

This month's meeting is an important one for the club. While we will have another great program,



February is also the month of Officer elections. I have had the privilege of serving as President for the last three years and joined by an excellent team of officers that have made my job much easier. We have a slate of proposed officers on the table, but the ByLaws allow other nominations to be made for any of the positions during the meeting and prior to our vote. Be sure that your membership is up to date as only current members are allowed to vote in the election.

With this, I close out my final "From the President..". I will continue to be active as both a Director in an advisory capacity to the officers and all GARS activities and meetings. Let's get started with 2021.

73,



WB4QDX, Club President

GARS Meetings & Workshops

GARS Meetings and Workshops

Will be held online until further notice. See <http://www.gars.org> for more information

GARS Virtual Login and Zoom Etiquette

Due to COVID-19 the following events are being held via Zoom video conferencing. Login info will be emailed via Groups.io. Subscribe at; <https://groups.io/g/GARS>

Workshops and Meetings are OPEN to all, feel free to share your invite with others.

- Workshops and Meetings will be **recorded**. By participating you consent to being **recorded**.
- Please change your display name to Your **FirstName CallSign**, e.g. **Hiram W1AW**
- [How to change Your Display Name in Zoom](#)
- Please stay muted until ready to speak. Your space bar works like a PTT for un-muting
- To be fair to everyone, there will be a three minute limit for each person during Q & A
- You may ask questions in chat; **please stay on topic while using chat.**

GARS Meetings Schedule (second Tuesday @ 7:00 PM):

- February 9, 2021 – [John Kludt K7SYS](#), The 4-Year Amateur Radio Upgrade to ISS
- March 9, 2021 – [Neil Foster N4FN](#) – The Art of QSL'ing (or how I learned the hard way)

Workshop Schedule (third Tuesday @ 7:00 PM):

- February 16, 2021 – [Lee Johnson N4WYE](#) Nano VNA (Vector Network Analyzer) Part Two
- March 16, 2021 – [Rich Donahue K0PIR](#) – Improve your portable and RV mobile operation

GARS Meeting – February 9, 2021

[John Kludt K7SYS](#), The 4-Year Amateur Radio Upgrade to ISS

There is a new radio on the ISS with crossband repeater capabilities! But we didn't just go down the local ham radio store and buy one. How many radios have been on the ISS and how did the new one get there? Why did it take so long? What does a red LED mean to the ISS crew? That a piece of equipment is turned on? Or something else? Where are the radios on the ISS and what does the "shack photo" look like? All of these questions and more answered as we discuss the new radio on the ISS, its' capabilities and give some tips on how best to use it.

GARS Workshop – February 16, 2021

[Lee Johnson N4WYE](#) Nano VNA (Vector Network Analyzer) Part Two

Last month at the online GARS meeting Lee introduced us to the Nano VNA (Vector Network Analyzer) and how he used it to optimize the 49:1 transformers for his HF End Fed Half Wave antennas. In this GARS Workshop, Lee is going to give a quick review of Part One and then show us how to test and plot the characteristics of a few HF Band Pass Filters (BPF). We will quickly see how much attenuation we should get from such filters from adjacent transmitters during Field Day or other multi-operator, multi-transmitter contest. You could use this info to build and test your own BPFs or test the ones you have after a contest to ensure nobody damaged them during the last event.

Inside

President's Message	2
GARS Meetings & Workshops	3
GARS Happenings	5
New Year, New GARS Officers	5
Net Managers Corner	6
Kansas QSO Party Winner	7
GARS Winter Happenings	8
DMR – Operating Procedures, PTT	9
Collins KWM-1- Station	11
GARS Membership	14
GARS Meeting Minutes	16
Events – GARS and others	17
Active VE Testing Sessions	19
Local VE Sessions & Meetings	20
GARS Supporters	21

GARS Communication

<u>2 Meter Repeaters</u> 147.075(+) MHz Tone 82.5 147.255(+) MHz Tone 107.2 <u>1.25 Meter Repeater</u> 224.580(-) MHz Tone 100.0, 1.6 MHz Offset <u>70 Cm Repeaters</u> 444.525(+) MHz Tone 82.5 442.100(+) MHz Tone 100 442.325(+) MHz Tone 100	<u>6 Meter Repeater</u> 53.110 (-1 MHz) No Tone (Offline for Maintenance) Other Resources: <u>APRS</u> 144.390 -- 1200 Baud W4GR <u>D-STAR</u> WD4STR 145.060 + (1.4 MHz) 440.550 + (5 MHz)
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**Don't forget
to support our
advertisers at the
back of the
GARzette.**

Snail Mail Address:
GARS
P.O. Box 492531
Lawrenceville, GA 30049

Notable Web Links

Ham Radio Glossary: <https://noji.com/hamradio/glossary.php> a very comprehensive listing provided by Noji Ratzlaff KNØJI. On his site there is also a lot of information about getting started in ham radio.

The *GARzette* is the official monthly newsletter of the Gwinnett Amateur Radio Society, serving its members and other persons interested in the advancement of the Amateur Radio art.

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If possible, bring your articles to the monthly meeting in Microsoft Word or rich text (.rtf) or text or HTML format or by e-mail to editor@gars.org. Artwork can be accepted in most any graphics format and can be submitted via e-mail to the same address. Alternate means of submittal can be arranged when necessary.

In keeping with the Amateur Radio spirit, permission is hereby granted for the reproduction of The *GARzette* articles by other Amateur Radio club newsletters provided that proper credit is given to the individual author and *The GARzette*.

The GARzette is published each month with the assistance of Norm Schklar, WA4ZXV who prints copies for distribution at meetings, etc. and Dave Bruse, W4DTR, who distributes the newsletter electronically.

Deadline for submissions is the 28th of each month for inclusion in the following month's issue.

For additional information view our Website at: <http://www.gars.org>

Newsletter Email: editor@gars.org Editor: Bob Hoffman, K4CQO Assistant Editor: Bill Eggers, WB2RIS



GARS HELP WANTED

Speakers Needed for GARS Workshop Presentations, 3rd Tuesday of the month – Email workshop@gars.org to volunteer.

[PS— Articles to publish in the *GARzette*, either written by GARS members or published elsewhere, are always welcome. —Ed.]

GARS Happenings

20 Years ago in the February 2001 GARzette:

- David Adcock, KA4KKF gave his last President's pen
- GARS was renewed as a Special Service Club
- Barry Zoll, N1TOQ provided the TechFest 2001 successful review
- Barry Zoll, N1TOQ continued his monthly "Hot Frequencies" listing 2m hot frequencies

You can always browse the GARzette archive at <http://www.gars.org/newsletters>
73, Bob, K4CQO, GARzette Editor



New Year, New GARS Officers

GARS is having its new officer elections in February. The members will vote on the officers during the February general meeting. The nominations for officers are:

- **President – Joe Biddle (AD4PZ)**
- **Vice President – Jamie Burns (KX4HA)**
- **Treasurer – Pam Meridy (WB1AKQ)**
- **Secretary – Bill Hawkins (WR1TR)**
- **Program – Kevin Scott (K4GTR)**

GARS will be also be accepting nominations for elected positions at the February General Meeting before voting commences.



AMATEUR RADIO LICENSING CLASS GENERAL LEVEL LICENSE (INTERMEDIATE LEVEL LICENSE)

MARCH 6, 13 & 20, 2021

AMERICAN LEGION POST 294

3282 FLORENCE ROAD, POWDER SPRINGS, GA 30127

Students must attend all three classes. Classes are from 8:00 AM until 3:00 PM. There are no facilities for meals so you must bring your own or go out for lunch. We will take lunch from 11:00 AM to 12:00 NOON. There are restaurants nearby.

Students must register for the class. The ARRL General Manual will be used for the class. You can purchase the manual from the ARRL at www.arrl.org or from Amazon. You can also purchase the manual from Ham Radio Outlet, 6071 Buford Highway, Atlanta (about two miles North of I-285 on the right) or www.hamradio.com.

There is no fee for the class or for the FCC Exam at the conclusion of the class. **For more information or to register, please contact ELDEN MORRIS, N1MN at 770-713-4403 or by e-mail at N1MN@ATT.NET**

Net Managers Corner

Monday Night 2 Meter "Want, Swap, Sell, and Information Net"

GARS NEEDS MEMBERS TO SERVE AS NET CONTROL STATIONS!

GARS is a great Amateur Radio service club and we have the membership and awards to prove it. Our club is a very busy and active club and we use the Monday night net to get the information out to our members. Weekly participation is needed to make our net function well. There is only a small group of very dedicated people that make the net happen each week, and we need more members to volunteer to serve as Net Control Stations (NCS) on a rotating basis.

Out of almost 300 members, there are only SEVEN primary people who serve as NCS for the GARS net every Monday night. In no particular order, they are:

Don - KW4AL

Ray - N4GYN

Bill - KK4AUA

David - KA4KKF

Kevin - KK4WOG

Chuck - KK4TKJ

Russell - AB4QQ

As GARS Net Manager (Chuck KK4TKJ), I really need 26 people to fill NCS positions. I do plan and post the schedule months in advance. Any conditions will be accommodated that you as a rotating NCS need to place on the scheduling of your duties. If your plans change, I can make adjustments for the schedule to work, and I will make those changes happen as soon as I am notified of a problem. As Net Manager, I also send out reminders each week to let the NCS scheduled know he or she is NCS for the next Monday night net. In short, serving as a rotating NCS is a small duty but a great contribution to the club.

The "Want, Swap, Sell Information Net" begins promptly at 19:30 every Monday night and runs about 45 minutes. As a scheduled NCS, you will request the assistance of a volunteer alternate NCS each time you have Net Control. Your simple duties will be to tune in to the GARS repeater, read the script, take a few notes and forward the information to me for record keeping.

Please lend a hand and contact me at KK4TKJ@arrl.net. Sign up to help support the effort that makes GARS the great club that it is.

73 and see you on the Nets!

Chuck McCord, KK4TKJ

GARS Net Manager

Kansas QSO Party Winner

Bob Hensey K4VBM (Very Bad Memory) recently received a package in the mail yesterday, and it was from the coordinator of the Kansas QSO Party, Bob Harder, W0BH.

It was the award for taking 1st place in the FT8 category in the Kansas QSO Party for 2020 with Bob's humble 100W station and wire antennas.

Bob decided to model his award in his shack:



Here is an excerpt from the letter accompanying the award:

We also hope you'll join us for the **2021 Kansas QSO Party on August 28-29** (the last full weekend in August). If you have comments or suggestions, I'd like to hear from you.

Let me know if this gets through the mail unscathed! All the best and many more QSOs in 2021 ..

73, Bob, w0bh

Bob

Bob Harder
KSQP Coordinator
kansas150@hotmail.com

Well done, Bob! It's not often you can win a category with 13 Qs against 28 other ops, but no one was even close. Here's to an even better 2021 ..

73 *[Signature]*

Hopefully, we will all survive this pandemic, and soon be able to more fully enjoy our hobby and ham friends again!

Get on the radio, make those QSOs, submit your logs to the contest coordinators, because you never know what might happen!

GARS Winter Happenings

GARS participated in this year's **Winter Field Day** on January 29th & 30th. There were 14 participants that recorded over 17,000 points and over 2,500 QSOs. The point total is going to grow with the yet to be counted bonus points.

Congratulations to all who participated. More details will be listed in the coming months.

In addition, **Scott WB8ICQ** didn't participate in Winter Field Day, but had a winter field operation doing Summits on the Air. Scott's entertaining report of his POTA adventure follows.

On Saturday morning, the XYL and I drove up to Unicoi Gap, north of Helen and parked the car there. First we hiked southbound on the Appalachian Trail (climbing up the western side of the gap) for about 1.5 miles to reach the summit of Blue Mountain, W4G/NG-010. The temperature was just around freezing, and although there was little ice on the trail, we did see a few icy patches and one boulder with beautiful icicles hanging down. Contrary to the forecast for partly sunny weather, the sky stayed cloudy. There was no warm sunlight and a breeze that would have seemed gentle in the summertime just added to the winter chill. The XYL hung around for a few minutes and then headed back down to the car, where she had some books, a sleeping bag, and a thermos of hot water stashed to hang out in warm comfort. I set up the telescoping fishing pole I use as a 20 foot mast, the end-fed 43 foot wire antenna, and the Elecraft KX1 CW rig, and started working 20 m CW. As soon as the reverse beacon network picked me up and posted my call, I had a pileup that took me about 30 minutes to work through. Only one contact to Europe, but plenty to the western U.S. By the time I had worked through the pileup, my hands were cold and I was ready to tear down and descend.

Heading back down to the gap and completing my 3 mile round trip, I met the XYL at the car and stopped for lunch. Then we hiked up the eastern side of the gap, heading southbound on the Appalachian Trail for about 1.5 miles to reach the summit of Rocky Mountain (W4G/NG-011). The XYL took a few moments to visit a nearby overlook and then headed directly back down to the car. I set up and did another activation, this time wearing some other gloves that were a bit warmer. The QSOs started about 1915 UTC, and conditions had changed somewhat on the bands. Twenty meters was still open to the American west and northwest, lots of calls from 5- and from 7-land, and a few to the midwest, but not as many stations this time. That gave me time to activate on 40 m as well, with QSOs along the east coast from North Carolina to New Hampshire. Then I packed up and retraced my route back to the car.

It was pretty cold. Toiling up the mountain with the full backpack was an easy way to stay warm, but sitting around playing with radio was not. While operating I wore multiple layers of fleece, a down jacket, my Goretex parka for wind protection, a fleece hat under the parka hood, polypropylene long johns under nylon pants, and leather hiking boots with two pairs of wool socks. It worked out pretty well but the hands do get cold.

Hope the Winter Field Day participants had as much fun!

73

Scott WB8ICQ

DMR – Operating Procedures, PTT

An Article provided by Bob Hoffmann, K4CQO

In order to listen to a TG, the TG has to be sending the traffic to the radio. In the DMR world, that does not happen by itself. When a repeater is setup, the TGs that are available on a repeater are either “static” or “PTT”. A static TG is one that is always sending the traffic out to radios – like broadcasting the traffic. A PTT TG is one that has to be selected before it will start broadcasting to the radio. The selection is a momentary transmission – keying of the transmit button. The PTT initiated will then broadcast the traffic to the radio for a time – usually 15 minutes, after that time it goes silent again until another keying of the transmit occurs. The transmit keying has to reach the repeater, so the TS has to be available to receive your keying – that TX Admit / Admit Criteria was talked about in last month’s GARzette. The repeater will start broadcasting the traffic to your radio after the PTT TG is selected. Note that the connection to your radio is the same for all radios connected to the repeater. Each radio will receive the same info that the repeater sends on TS1 and TS2. The radio will hear the info if the radio is set to the TG that the repeater is sending.

Repeaters usually only have a few static TGs – and a lot of them only have one. It is usually one that includes the local area TG. For example, the Stone Mountain, GA DMR Repeater W4BOC supports 2 static TGs, TG 8 (Local repeater area) on TS 1 and TG 3113 (Georgia State) on TS 2. Other supported TGs are accessed using PTT.

The TGs that have a wide distribution – like TG 91 which is world wide English – should not be used for long winded rag chewing. Most of the conversations on TG 91 go like this: call signs, where you are (usually near a big city in what country), and then how the weather is. Short and to the point. Sometimes, there is a longer conversation about how one has spent time in the others location. For longer conversations, it is good practice to move to a different TG that both have access to for the longer rag chewing. The TAC TGs are the traditional ones to be used for longer conversations – but you have to check if the particular TAC TG is available to the person that you want to switch with. Not only does the TAC TG have to be available on the repeater / hotspot you are connected to, but your radio also has to have the TAC TG programmed to the repeater / hotspot channel. So switching may sound easy, but it is only easy if everything is already in place for both stations to be able to move.

For the PTT TGs, you have to select it before hearing any traffic. While it works to just momentarily hit the transmit key, it is better to do that, and then identify yourself after listening for a little bit – like the Monday night log in: key up and say this is, and wait to see if there is anybody else is also talking. For DMR, there is no “this is”, but after doing the PTT selection, wait a bit to see if there is already traffic on the TG. Then announce yourself with your call sign and that you are monitoring the TG. Most will see your selection of the TG – you DMR ID is transmitted when you hit the transmit button, and radios that have the digital contacts loaded on them will see you call sign and location – but without you identifying yourself with your call sign, you are not in compliance with FCC rules to identify yourself.

Once you initiate a PTT TG, it stays active for a time period – usually around 15 minutes. There is a way to end the PTT TG connection, but not all repeaters or connected servers (for hotspots) support it. For example, Brandmeister uses TG 4000 as a way to end a TG connection. Set your radio to TG 4000 and then key the PTT. It will end the connection to the previous TG on that TS.

So, how to find a repeater that is near you, and also find out what TGs are supported and which TS that are assigned to. The repeater listing should also list the static and PTT TGs it has. Here is where Google is your friend. Use some of the repeater lookup programs, and find one that is close to you. The repeater book on your phone is a good tool for that. For example, in my location the repeater book shows the image shown.



Sawnee Mountain - NG4RF

Cumming, GA

Repeater ID: 13-378

Downlink: 444.62500

Uplink: 449.62500

Offset: +5.0 MHz

DMR Enabled

Color Code: 1

DMR ID: 311320

IPSC Network: K4USD Net^c

Wide Network:

County: Forsyth

Grid: EM74wf

Call: NG4RF

Use: OPEN

Op Status:  On-Air

Coverage: North side of Metro

Atlanta

40 mi radius.

Affiliate: K4USD network

Web links: Sponsor: NG4RF --

North Georgia RF Group (NGRFG).

Sponsor: W3CP -- BRYAN W. DUNN -- TRUSTEE.

Sponsor: K4USD Network.

K4USD Partial Listing

Talk Group Name	TG	TS	Comments
DMR-MARC WW	1	1	World Wide (DMR-MARC)
Local 2	2	2	Local Area Network (defined by the local repeaters)
DMR-MARC NA	3	1	North America (DMR-MARC)
Local 8	8	2	Secondary Local Area Network (if available, also TS1 on some rpts)
Local 9	9	2	Local Repeater Only
Brandmeister WW	91	1	World Wide (BM)
Brandmeister NA	93	1	North America (BM)
DMR+ USA	133	1	DMRPlus USA (Reflector 4639)
USA	1776	2	USA Talkgroup
TAC-310	310	2	Tactical Channel for QSOs (DMRX) (Linked to BM)
TAC-311	311	2	Tactical Channel for QSOs (DMRX) (Linked to BM)
TAC-312	312	2	Tactical Channel for QSOs (DMRX) (Linked to BM)
TAC-313	313	2	Tactical Channel for QSOs (DMRX)
TAC-314	314	2	Tactical Channel for QSOs (DMRX)
TAC-315	315	2	Tactical Channel for QSOs (DMRX)
TAC-316	316	2	Tactical Channel for QSOs (DMRX)
TAC-317	317	2	Tactical Channel for QSOs (DMRX)
TAC-318	318	2	Tactical Channel for QSOs (DMRX)
TAC-319	319	2	Tactical Channel for QSOs (DMRX)
JOTA	907	2	Boy Scout Jamboree-on-the-Air (BM)
JOTA TAC1	9071	2	Boy Scout Jamboree-on-the-Air TAC-1 (BM)
JOTA TAC2	9072	2	Boy Scout Jamboree-on-the-Air TAC-2 (BM)
Florida	3112	2	FL State TG
Georgia	3113	2	GA State TG (BM)
Handi-Hams	31990	2	Handi-Hams (BM) http://handiham.org

I have marginally connected to the Cumming Sawnee Mountain repeater, but it was touch and go – which is the reason that I have a hotspot (but that is for another month). The next step is to do a search on the call sign of the repeater, like NG4RF. A Google search using “NG4RF Repeater” yields the information below and the important part that you can get from this – besides the frequencies and the Color Code – is that it uses K4USD. A subsequent K4USD search (K4USD.org) will give the listing of K4USD TGs and the TSs that they are assigned to (I included a partial listing of the TGs). The K4USD repeaters, in general, all use the same TGs and TSs (at least that is a starting point, it is really up to the repeater owner to decide which TGs are supported). Other repeaters list which network that they are with, and some also list TGs and TSs directly. This is where you have to do your homework.

(Hotspots in the next installment)

The entire article is available on-line, see

http://www.gars.org/newsletters/2021_02_GARZETTE.pdf

Collins KWM-1- Station

Vintage Amateur Radio

de Bill Shadid, W9MXQ



This month we stay with Collins and move to a market changing product from the 1950's – the KWM-1 Transceiver. This radio began a trend in ham radio that continues to this day, the ubiquitous SSB/CW Transceiver. In 1957, Collins Radio Company followed the 1955 introduction of the 75A-4 Receiver and KWS-1 Transmitter station with the KWM-1 Transceiver. The KWM-1 was a true station in a box with all operations within a single cabinet. This is the concept that we use to this day. Critical were internal circuits designed to do double duty and be used for both receive and transmit. Up to that point, most “transceivers” were nothing more than a separate receiver and transmitter in the same cabinet. Here

is a complete station based on the KWM-1 . . .



The KWM-1 Transceiver and the 516F-1 AC Power Supply

The above picture does not clearly show the speaker mounted in the hinged top cover of the transceiver – but you can faintly see the mounting screws for that speaker at the right front area of the top cover. Collins also offered a separate Station Console, the Model 312B-2, to further compliment the home station, provide a station wattmeter, a phone patch, and provide for a front facing speaker. The 312B-2 is pictured here in another view with the KWM-1 Transceiver . . .



The KWM-1 Transceiver and the 312B-2 Speaker

(the 312B-2 included a Speaker, Wattmeter, and Phone Patch)

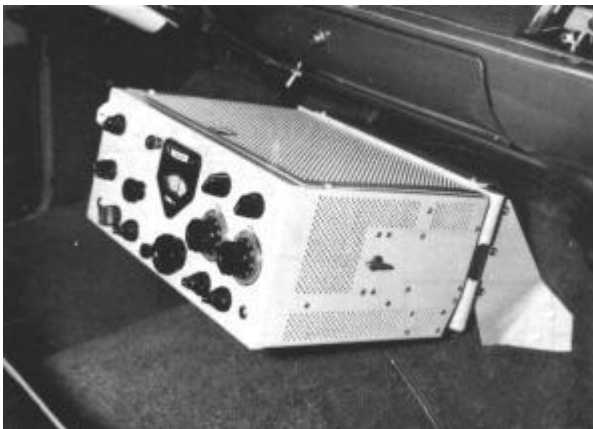
A bit of clarification is in order here – every Collins KWM-1 I have seen or owned has had the speaker in the top cover, as shown and mentioned. However, I have never been 100% certain if this internal

speaker was standard equipment or a common add-on in the field. I strongly suspect it to have been a common feature added by many or most users. Supporting this notion is the speaker's wiring – by a cable exiting the back to connect to the rear panel speaker socket. But, after sixty-years such things become harder and harder to quantify.

Collins, at the time of the product design, decided to focus on only a portion of the high frequency spectrum and release the transceiver covering only 14 to 30 MHz (Megacycles in those days). But, while bandswitched in 100 kHz band segments, the radio was general coverage in its range depending on the crystals selected to be inserted in the 399B-1 Crystal Oscillator Assembly at the upper left-hand corner of the front panel. These assemblies could hold up to 10 range crystals allowing 10 ranges of 100 kHz each. A user could use multiple 13C-1 assemblies – removing them and installing another group of ranges at will. If you look carefully at the front panel pictures, above, you can make out the small clips at each side of the 13C-1 units shown installed. So, the radio, with the correct range crystal would cover the entire spectrum from 14 to 30 MHz. Today these radios could cover the 17 and 12-meter bands in addition to 20, 15 and 10. This idea of changing the 13C-1 was not common in the days when the KWM-1 was new. It would likely be nearly impossible to find extra 13C-1 units today.

There were also the 399B-1 DX Adapter that allowed split frequency operation, the 399B-2 DX Adapter that was for export sales only, and a 399B-3 Novice Adapter that provided for crystal control of the KWM-1 transmitter section. The 399B-3 would have allowed Novice operators of the time to meet restrictions for Novice class licensees who wanted to use the KWM-1 on 15-meter CW. These 399B-(x) adapters mounted under the transceiver's chassis. The rest bears investigation as I have never seen one of these units installed. It is important to know that when using the 399B-1 or 399B-2 DX Adapters the radio was crystal controlled on transmit – with a selection of seven transmit crystals available for use. I have no personal experience using any of these three Adapters but do have additional information if anyone is interested.

So, why just cover such a limited frequency range? Later, other manufacturers did the same thing but focused on 80, 40, and 20 meters. (National NCX-3, Galaxy 300, Eico 753, etc.) So, why? At the time the KWM-1 was going on the market, Solar Sunspot Cycle 19 was heading for its forecast maximum in 1960. Times were good for 20, 15, and 10-meters. Later manufacturing cycles from other manufacturers focused on the Sunspot Low of about 1965 (between Cycles 19 and 20) – when the 80, 40, and 20-meter bands would be at their best. Also at the time of the KWM-1, removing the larger output tank circuit components for the lower frequency bands relieved pressure on the designers for getting all the necessary RF components in a package that could fit under the dash of a car – another important component of the KWM-1 design. Observe this typical installation of a KWM-1 Transceiver in an automobile of the day . . .



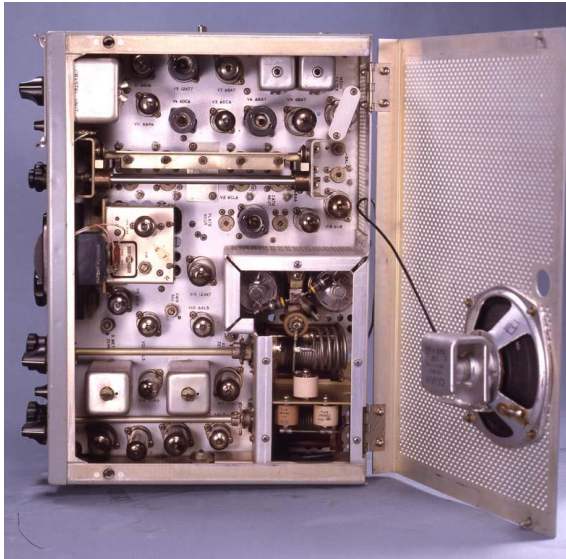
Typical mobile installation of the KWM-1 Transceiver in an automobile of the late 1950's. Mounting used the Collins 351-D1 Mobile Mount. Not visible in this view is the Collins 516E-1 DC Power Supply. The 526E-1 is probably mounted on the other side of the firewall, in the engine compartment. However, some installations used a separate battery, along with the 516E-1 mounted in the trunk of the vehicle.

A logical question follows about why other manufacturers managed to get all the HF bands in a similar

sized package. Indeed, so did Collins only a short time later with the KWM-2 Transceiver (chronicled in an upcoming installment). They quickly improved in becoming more efficient with packaging the components in smaller and smaller cabinetry. That is a trend we see every day in electronics.

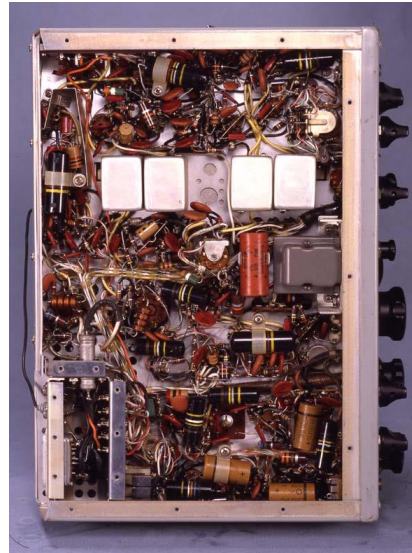
The KWM-1 introduced what became a standard Power Amplifier for the rest of Collins Radio Company history with vacuum tube Transmitter/Exciter products. Collins chose to use a pair of the 6146 Beam Power Tetode developing a power input of 175 watts CW and PEP SSB (about 100 watts output). This extended through the Collins KWM-1 life cycle and all products until the introduction of the all solid-state Collins KWM-380 Transceiver in 1979.

To get an idea of the internal complexity of the KWM-1 design. I show two pictures of the interior of the radio. Please note . . .



Top Interior View

**Speaker is mounted on the Hinged Cover.
S-Line/KWM-2 Owners will note similarities.**



Bottom Interior View

**See component density with
multiple layers of components.**

I regret that I no longer have a Collins KWM-1 Transceiver in my collection. The pictures here are from WA3KEY, The Collins Collector Association, and The Collins Radio Association. I have restored three of these radios – one of which was my own. It has been perhaps ten years since I owned one. They are very nice to use, have very pleasing audio, but as was happening with Collins at the time, were very difficult to use on CW. It seems that Single Sideband had smitten Collins founder Art Collins, Chief Executive Officer of Collins Radio Company at the time. Even AM was absent from the Mode Switch.

In my last installment, the Collins Gold Dust Twins article in the October Newsletter, I said that the article this month would cover the Collins S-Line. The KWM-1 shown here is so significant in the market that I felt it deserved comment first. So, back on schedule next month with the Collins S-Line – the 75S-Series Receiver and the 32S- Series Transmitter.

A special thanks go to Bob, W9DYQ, for his proof reading. I appreciate that you read my articles. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

©W9MXQ

The entire article is available on-line, see
http://www.gars.org/newsletters/2021_02_GARZETTE.pdf

GARS Membership

January New GARS Members

John Gammons (KO4JTD)
 Bob Gerzoff (WK2Y)
 Hiroko Ortiz (KO4JWM)
 Nicholas Plotts (KO4LIO)
 Alex Sexton (KO4KVL)
 Evelina Silva (KO4FQI)
 Lori Silva (KK4NFW)
 Rebecca Simonsen (KO4ESI)

New Members: 8

**Total Members as of
 February 1, 2021
 331**

Join GARS members for our weekly breakfast
 gathering at

7:30 AM most Saturdays

Now at

Cracker Barrel Restaurant
 75 Celebration Dr.
 Suwanee, GA 30024

February GARS Birthdays

Marvin Atherton (KG4FHB)
 Lauren Atkin
 Don Bagby (KK4NJM)
 Shari Branson
 Michael Curtis (KK4WWB)
 Juan Manuel Dominguez (N5JMD)
 Samuel Fortin (KJ4VPI)
 Eddie Foust (WD4JEM)
 Bob Hensey (K4VBM)
 Sandy Jackson (KJ4DRO)
 Suzy Jones (KK4MWC)
 Eva LaBerge (N4OCO)
 Bruce Lindsey (K0GNB)
 Edward Lodden (KX4KL)
 Steve Marlowe (KN4VCQ)
 Philip McCleary (N4LNE)
 Carlton McPherson (WA4ZUW)
 Charles Miller (KX4SB)
 Aaron Morris (KG4ALB)
 Robby Nelson (KK0BSA)
 Peter Park (KO4BYJ)
 Steven Richardson (N4STR)
 George Sensibar (W9RR)
 Donald Silva (NX1Q)
 Ada Silva (KK4TGR)
 Lori Silva (KK4NFW)
 Luann Smith
 Lee Stone (KT4LS)
 Richard Tooke (KB4DL)
 Emily Wagner (KN4GZJ)
 Sharon Willet (KM4TVU)

GARS MEMBERSHIP

Your current GARS membership status is shown in the monthly newsletter e-mail towards the bottom of the message.

To become a GARS member, or to renew your GARS membership, please visit our website—<http://www.gars.org>

To make changes to your GARS membership (moved, new e-mail address, new phone number, etc.), please e-mail the Membership Committee - membership@gars.org

You can renew or update your Amateur Radio license information with the FCC at their website for free
<http://wireless.fcc.gov/uls/index.htm?job=home>

To update your ARRL information, please visit their website - <http://www.arrl.org>

Membership Chair: Karen Albritton, KI4HPP

Committee Members: Dave Bruse, W4DTR, Pam Meridy, WB1AKQ

Repeater Status

6M Currently down
 147.075 Operational in Snellville
 147.255 Operational in Snellville
 224.580 Operational in Grayson
 442.100 Operational at Goshen Springs
 442.325 Operational in Buford
 444.525 Operational in Snellville
 Link remote receivers being added

Donating to GARS

Your GARS donation can be used for a certain purpose by donating to one of these funds:

- GARS SK Memorial Fund for Education (to remember and honor Silent Keys);
- GARS Scholarship Fund (Administered by the ARRL for awarding scholarships);
- GARS General Fund (any club purpose).

GARS has joined these rewards programs (a portion of every purchase you make through these merchants may be donated to GARS):

- Amazon Smiles;
- Kroger Community Rewards program.

For more information on how to sign up for these rewards programs, or to donate to GARS, visit

<http://gars.org/gars/donations-to-the-club>

GARS on Social Media



Discord Request:

<http://gars.org/discord>



Groups.io:

<http://gars.org/groups.io>



Visit GARS on Facebook:

<http://gars.org/facebook>



Follow GARS on Twitter:






<http://gars.org/twitter>

















Join GARS on YouTube:

<http://gars.org/youtube>





Officers

John Davis, President	WB4QDX	
Sandy Jackson, Vice President	KJ4DRO	
Joe Biddle, Secretary	AD4PZ	
Pam Meridy, Treasurer	WB1AKQ	
Randy Collins, Program Manager	N4COR	

Managers and Committee Chairs

Karen Albritton, Membership Chair	KI4HPP	
Dave Bruse, VE Team Leader	W4DTR	
David Adcock, Webmaster and Field Day Chair	KA4KKF	
Ralph Pickwick, Apparel Manager and Education Chair	KJ4CNC	
Glen Wendt, TechFest Chair	W3WWT	
Bob Hoffmann, GARzette Editor	K4CQO	
Eddie Foust, Repeater Chair	WD4JEM	
Mike Weathers, WAS / DXCC QSL Card Checker and Historian	ND4V	
Chuck McCord, Net Manager	KK4TKJ	
Steve Back, Technical / RFI Advisor	WB2OGY	
Joe Biddle, Winter Field Day Chair	AD4PZ	
Kyle Albritton, Multimedia Chair	W4KDA	
Don Stewart, Elmer Manager	KW4AL	
Dave Slotter, Georgia QSO Party Chair, Workshop Leader and Public Information Officer	W3DJS	

Directors and Trustees

Kyle Albritton, W4KDA		Rick Cobb, N4XY	
Mike Weathers, ND4V		Bill Cherepy, WB4WTN W4GR Trustee	

GARS Meeting Minutes

Gwinnett Amateur Radio Society – GENERAL Meeting Minutes

1/12/2021

President John Davis (WB4QDX) and Opened the meeting at 7:00pm and Closed the meeting at 9:15pm

(Covid-19 Alternative Online)

~~EAA Facility, 690 Hanger Rd. Lawrenceville, GA.~~

Online participants: 76

Treasurer Report: Pam (WB1AKQ) presented the financial report.

Membership Report: John reported the Membership is at [335].

Programs – Randy (N4COR)

- **February – John Kludt (K7SYS)** – The 4-Year Amateur Radio Upgrade to ISS
- **March – Neil Foster (N4FN)** – The Art of QSL'ing (or how I learned the hard way)

Workshop – Dave (W3DJS) announced the following upcoming Workshops:

- **January – Brian Haren (W8BYH)** – Georgia Amateur Radio Situation Awareness Map
- **February - Lee Johnson (N4WYE)** Nano VNA (Vector Network Analyzer) more in depth

Voting for GARS Club Officers 2021 – The current slate of club officers to Vote on in February: (No nominations were submitted in this meeting)

- **President – Joe Biddle (AD4PZ)**
- **Vice President – Jamie Burns (KX4HA)**
- **Treasurer – Pam Meridy (WB1AKQ)**
- **Secretary – Bill Hawkins (WR1TR)**
- **Program – Kevin Scott (K4GTR)**

GARS will be also be accepting nominations for elected positions at the February General Meeting before voting commences.

Winter Field Day – Joe (AD4PZ) January 30th, 31st.

- GARS will be operating as a Club/Group per the WFD2021 rules change due to Covid-19. Keep accessing GARS.org the Winter Field Day under the Activities tab for access to the WFD2021 Rules and how to submit your contacts log to contribute to the GARS Team effort.

- **David (KA4KKF)** will put together a procedure for how to add your contacts for GARS and how to connect to the contest Dashboard.

Program - **Lee Johnson (N4WYE)** – NANO VNA (Vector Network Analyzer)

****Future Event dates** are recorded at the time of the General Meeting and subject to change.

Submitted by: **Joe Biddle (AD4PZ)** GARS Secretary

Gwinnett Amateur Radio Society Workshop Minutes

1/19/2021

Number in Attendance: 35

Workshop Topic: Georgia Amateur Radio Situation Awareness Map

Presenter: Brian Haren W8BYH

Brief Summary: Brian walked us through the creation of his Georgia ARES Situational Awareness Map website and how to use the various features and map layers to display various repeater types (Analog FM, D-Star, Fusion, DMR), digipeaters, Winlink gateways, NOAA warnings/weather overlays, various traffic overlays, and hurricane evacuation routes.

Door Prize Winners: Jamie KX4HA and Ben NJ8J - 10\$ HRO Gift Certificate.

Submitted by: Dallas N4DDM

Events – GARS and others

ARRL CONTESTING INFO	HAMFEST CALENDAR
<p>From ARRL Contest Calendar > For more information click the links <</p> <p>February 2021 8-12 School Club Roundup 20-21 International DX – CW</p> <p>March 2021 6-7 International DX– Phone</p> <p>April 2021 11 Rookie Roundup – Phone</p> <p>(no ARRL contests in May)</p> <p>June 2021 12-14 June VHF 19 Kid's Day 26-27 Field Day</p> <p>July 2021 10-11 IARU HF World Championship</p> <p>August 2021 7-8 222 MHz and Up Distance Contest 14-15 10 GHz & Up – Round 1 15 Rookie Roundup – RTTY</p> <p>September 2021 TBD EME - 2.3 GHz & Up 11-13 September VHF 18-19 10 GHz & Up - Round 2</p> <p>October 2021 18-22 School Club Roundup TBD EME - 50 to 1296 MHz</p> <p>November 2021 6-8 Nov. Sweepstakes - CW 20-21 Nov. Sweepstakes - Phone TBD EME - 50 to 1296 MHz</p> <p>December 2021 3-5 160 Meter 11-12 10 Meter 19 Rookie Roundup–CW 18-19 EME - 50 to 1296 MHz</p> <p>January 2022 1 Straight Key Night 1 Kid's Day 8-9 RTTY Roundup 15-17 January VHF Contest</p> <p>For more information: http://www.arrl.org/contest-calendar</p>	<p>[Please confirm the status of a Hamfest before making plans to attend. – Ed.]</p> <p>HAMFEST/CONVENTION 02/13/2021 - 02/14/2021 Online - Orlando HamCation Special Edition 2021 Location: Orlando, FL Type: ARRL Convention Sponsor: Orlando Amateur Radio Club Website: http://www.hamcation.com</p> <p>HAMFEST/CONVENTION 02/20/2021 - Brooksville Hamfest Location: Brooksville, FL Type: ARRL Hamfest Sponsor: Hernando County ARA Website: http://hcara.org</p> <p>HAMFEST/CONVENTION 02/26/2021 - 02/27/2021 7th Annual TECHCON - ARRL West Central Florida Section Technical Conference Location: Winter Haven, FL Type: ARRL Convention Sponsor: ARRL West Central Florida Section Website: http://arrlwcf.org/wcf-special-events/wcftechconference/</p> <p>HAMFEST/CONVENTION 04/24/2021 - Savannah Area Swap Meet Hamfest Location: Savannah, GA Type: ARRL Hamfest Sponsor: Coastal Amateur Radio Society Website: http://coastalamateurradiosociety.net/wpW4LHSblog</p> <p>For more information: http://www.arrl.org/hamfests-and-conventions-calendar</p> <p>When searching by division, remember some states adjacent to GA are in different divisions: Southeastern: GA, AL, FL Delta: TN Roanoke: NC, SC</p>

GARS Events Calendar for 2021		GARS Recurring Calendar
TechFest Winter Field Day General HamCram Dog Show Fundraiser Georgia QSO Party North metro area Fox Hunt Memorial Day Parade ARC/KARC Hamfest Field Day Tech HamCrams JOTA Maker Faire Stone Mt. Hamfest Holiday Party	Canceled for 2021 January 30-31 2021 TBD April 1-4 2021 April 10-11 2021 April 2021 May 31 2021 TBD June 26-27 2021 TBD October 16-17 2021 TBD November 6-7 2021 December 14 2021	<ul style="list-style-type: none"> 2nd Tuesday of the month at 7 pm (except December): Monthly Club Meeting (online until further notice) 3rd Tuesday of the month at 7 pm (except December): Monthly Workshop (online until further notice) 2nd Sunday of the Month at 2 pm (suspended until further notice): GARS Ham Exam Session Fire Station #24 2735 Mall of Georgia Blvd Buford, GA 30519 Every Monday at 7:30 pm: GARS Want, Swap, Sell, and Information Net on the GARS 147.075 MHz repeater Every Monday at 8:30 pm: ARES Training on the GARS 147.075 MHz repeater Most Saturdays at 7:30 am : GARS Weekly Breakfast Cracker Barrel Restaurant 75 Celebration Dr., Suwanee, GA 30024

GARS CALENDAR FOR February 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1 7:30 – 8:00 PM GARS 2M Net	2 7:00 – 8:00 PM GARS Exec Meeting (Online)	3	4	5	6 Breakfast at Cracker Barrel in Suwanee 7:30 AM
7	8 7:30 – 8:00 PM GARS 2M Net	9 7:00 – 8:00 PM GARS Meeting (Online)	10	11	12	13 Breakfast at Cracker Barrel in Suwanee 7:30 AM
14 GARS VE Exam Session (Cancelled)	15 7:30 – 8:00 PM GARS 2M Net	16 7:00 – 8:00 PM GARS Workshop (Online)	17	18	19	20 Breakfast at Cracker Barrel in Suwanee 7:30 AM
21	22 7:30 – 8:00 PM GARS 2M Net	23	24	25	26	27 Breakfast at Cracker Barrel in Suwanee 7:30 AM
28						

Active VE Testing Sessions

On-Line Testing at hamstudy.org

So you want to take a remote exam...

If you read our recent press release then you already know about the group that grew up to take on this new challenge and it has been our privilege to provide the software that nearly all of them use.

To find an exam session, go to <https://ham.study/sessions/online>

Cherokee Amateur Radio Society

We may only be able to accommodate a few simultaneous tests so we can maintain the safety of everyone. We recommend highly that you register if you want to be accommodated.

Register with John Reynolds (VEC) W4TXA

Phone: (770) 715-9640

Email: wx4txa.john@gmail.com

Where: Cherokee County Charter Academy. 2126 Sixes Road, Canton GA, 30114 (We will be outside, under cover sidewalk, West/Left side of Building)

Time : 1:00PM (1300 - 1430) on January 9th, 2021, see <https://www.wx4car.org/testing2021.html>

Testing will be outdoors, but requires the wearing of a mask to keep everyone safe.

For more information, please visit their website at <https://www.wx4car.org/>

Stephens County Amateur Radio Society

VE session (date TBD) from 1 till 4 pm in Lavonia GA at 1240 E. Main St, at the white gazebo. [Lavonia, GA is off I-85 near the Georgia / North Carolina border... - Ed.]

If you need to test please get a hold of us at (kr4cw1@gmail.com.) We are working on a 2nd test session , if you would like to be a part of it please send us a contact email to club email and will be glad to help you on the prelist of this....

We will be giving All Tests (Tech, General, Extra) Cost will be \$15.00 must have ID and copy of License, if you're upgrading...if it's your first time taking a test please go to the FCC website and sign up for a FRN number and create your Account. Here is the link to get started: <https://apps.fcc.gov/coresWeb/regEntityType.do>

Please make sure you print this off and bring with you, so you will have your FRN number. Without this we cannot submit your test.

Source: <http://www.sc-ars.org/>

Local VE Sessions & Meetings

Local VE Testing

[Please check with each session contact for current status.—Ed.]

GARS publishes Metro Atlanta VE exam schedules as a service and is not responsible for errors or changes. Call and confirm schedules before going. All sessions are walk-in, unless otherwise noted. Take copies of current license and certificate of completed elements with you to all sessions. Find additional sessions online at <http://www.arrl-ga.org>

First Sunday, ODD Months

2 pm (Jan, Mar, May, Jul, Sep, & Nov)

VEC: WCARS

Braselton Public Utility Building

4986 Highway 53, Braselton, GA

Contact: Nat Christman K4VQ, 678-371-7103

christmans30680@gmail.com

First Sunday, EVEN Months

2 pm (Feb, Apr, Jun, Aug, Oct, Dec)

VEC: WCARS

Hall County EOC

470 Crescent Dr. Gainesville, Ga.

Contact: Perry Roper, KO4RD

(770) 536-3056

Second Saturday

10:00 AM

Alpharetta North Park, Adult Activities Center

13450 Cogburn Rd, Alpharetta, GA 30004

Contact: Ian Kahn, KM4IK

E-mail: km4ik.ian@gmail.com

Third Saturday, ODD Months

VEC: ARRL

9:30 am (Walk-ins welcome)

Stone Mountain Masonic Lodge

840 VFW Drive

Stone Mountain, GA 30083

Contact: Frank Haynes, KV4SP

Email: fhaynes@vatmom.net

(678) 467-3712

First Sunday, EVEN Months

VEC: WCARS and W5YI

2 pm @ Barrow Co. Emerg. Serv. Bldg

66 McElroy Street

Winder, GA 30680

Contact: Mike Wolcott, W4WYI

(404) 281-6581

E-mail: W4WYI@ARRL.net

Fourth Tuesday

ARRL VEC

7 pm @ United Way Service Center

6279 Fairburn Rd., Douglasville

Contact: Jessie Clower, KB4WFK

(770) 942-6466

Fourth Sunday

2:30 pm Georgia Tech

VanLeer Elec. Building

Rm. W218, 777 Atlantic Dr.

For more information go to www.w4aql.com and click on "Test Sessions"

GARS VE Testing

Second Sunday

VEC: W5YI

2 pm

Fire Station #24

Mall of Georgia Boulevard

Buford, GA 30519

Contact: Dave Bruse, W4DTR

E-mail: exams@gars.org

(Suspended until further notice)

January GARS Results

No GARS VE Session.

[Other local clubs are starting to hold limited VE sessions. See the articles on page 19 in this issue of the GARzette for more details. —Ed.]

GARS VE Team Leaders

E-mail: exams@gars.org

GARS VE Website:

<http://gars.org/exams>



Local Meetings

[Please check with each club for meeting schedule and method (online, etc.) - Ed.]

First Tuesday

Kennehoochee ARC

Fire Station #1, Training Room

112 Haynes Street, Marietta, GA

Meeting begins at 7:00pm

Talk In 146.880(-)

First Thursday

Atlanta Radio Club

Georgia Red Cross HQ

1955 Monroe Dr., Atlanta, GA

Meeting is at 7:30pm

Talk In -146.820(-)

N.E. Georgia ARC

Commerce Public Library

1344 South Broad Street, Commerce, GA

Meeting is at 6:30pm

Talk In - 147.225(+), PL 123.0

Second Monday

Georgia Tech ARC

Room W218

Van Leer Electrical Engineering Bldg.

Georgia Tech Campus

Meeting at 7:00pm

Sawnee Amateur Radio Association

Beaver Toyota

1875 Buford Highway, Cumming, GA

Meeting at 6:30

Second Thursday

Alford Memorial Radio Club

Annistown Road Baptist Church

Annistown Rd & Spain Rd

Stone Mountain, GA

Dinner at 6:00pm, Meeting at 7:30pm

Talk In - 146.760(-)

Second Saturday

North GA QRP Club

Board Room of The Shepherd Center

2020 Peachtree Rd, NW, Atlanta, GA

at 10:00 AM

Third Tuesday

North Fulton Amateur Radio League

Alpharetta Recreation & Parks Dept.

Alpharetta Adult Activity Center

13450 Cogburn Road, Alpharetta, GA

meeting at 7:30pm

Talk In - 145.47(-)

For more information, go to:

<http://www.gars.org/>

GARS Supporters

[Note: No store access; curbside delivery available until further notice. - Ed.]

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Assistant Mgr:

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David AI4XL

Denise

Ken KI4BQS

Ray WN5FB

Koz KD3GC



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